

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Y. Takai, et al.

Serial No.: 10/037,477

Filed: January 2, 2002

For: METHOD AND APPARATUS FOR

IRRADIATING A TARGET

Group Art Unit: 2882

Examiner: Unknown

PRELIMINARY AMENDMENT

Commissioner for Patents Washington, D.C. 20231

Sir:

Please enter the following preliminary amendment to the above identified patent application before substantive examination.

04/09/2002 HWOOR1 00000023 1E2475 19037477

IN THE SPECIFICATION

Please replace paragraph [0024] on pages 8 and 9 with:

[0024] In accordance an alternative embodiment of the present invention, the radiation beam generated by radiation source 12 serves as both a radiation treatment beam and an image forming beam. Apparatus 20 includes an image detector (not shown in Fig. 2) for detecting the images of the target or fiducial markers on the patient formed by the radiation beam generated by radiation source 12. In a typical radiation treatment therapy, the radiation beam generated by radiation source 12 is a high energy X-ray beam at an MV energy spectrum. On the other hand, the image beam generated by image beam source 11A or 11B typically has a kV energy spectrum. A system using Xray radiation at different energy spectrums for imaging is described in U.S. Patent Application Serial No. 10/033,327 entitled "RADIOTHERAPY APPARATUS EQUIPPED WITH AN ARTICULABLE GANTRY FOR POSITIONING AN IMAGING UNIT" and filed on November 2, 2001 and U.S. Patent Application Serial No. 10/013,199 entitled "X-RAY IMAGE ACQUISITION APPARATUS" and filed on November 2, 2001, which are incorporated herein by reference in their entireties.

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IN THE CLAIMS

Please add the following claims to the application:

- 1 31. (New) The method as claimed in claim 1, wherein the step
 2 of establishing a relationship of at least one marker
 3 relative to the target includes using an anatomy of a
 4 patient undergoing a radiation treatment as the at least
 5 one marker.
- 1 32. (New) The method as claimed in claim 31, wherein the step 2 of establishing a relationship of at least one marker 3 relative to the target includes using an internal anatomy 4 of the patient as the at least one marker.
 - 33. (New) The method as claimed in claim 31, wherein the step of establishing a relationship of at least one marker relative to the target includes using an external anatomy of the patient as the at least one marker.

REMARKS

By this preliminary amendment, the specification has been amended to update reference information, and new claims 31-33 have been added to the application. Claims 1-33 are pending in the subject application. A marked version of amended paragraph in the specification is presented in Appendix A.

Should the Examiner have any questions or comments, he is invited to call the undersigned representative of Applicants at (408) 993-1555.

Respectfully submitted,

LYON & LYON LLP Attorneys for Applicant

Dated: April 2, 2002

Зу: ______

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MARKED UP VERSION OF AMENDED PARAGRAPH IN THE SPECIFICATION

[0024] In accordance an alternative embodiment of the present invention, the radiation beam generated by radiation source 12 serves as both a radiation treatment beam and an image forming beam. Apparatus 20 includes an image detector (not shown in Fig. 2) for detecting the images of the target or fiducial markers on the patient formed by the radiation beam generated by radiation source 12. In a typical radiation treatment therapy, the radiation beam generated by radiation source 12 is a high energy X-ray beam at an MV energy spectrum. On the other hand, the image beam generated by image beam source 11A or 11B typically has a kV energy spectrum. A system using X-ray radiation at different energy spectrums for imaging is described in U.S. Patent Application Serial No. 10/033,327 [/ (Attorney Docket No. 05513.P003)] entitled "RADIOTHERAPY APPARATUS EQUIPPED WITH AN ARTICULABLE GANTRY FOR POSITIONING AN IMAGING UNIT" and Siled on November 2, 2001 and U.S. Patent Application Serial No. 10/013,199 [_/____(Attorney Docket No. 261/132)] entitled "X-RAY IMAGE ACQUISITION APPARATUS" and filed on November 2, 2001, which are incorporated herein by reference in their 🖫 entireties.